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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,715	05/10/2005	Federico Mancosu	07040.0209-00000	4838
22852 7590 11/29/2007 FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER FRANK, RODNEY T	
			ART UNIT 2856	PAPER NUMBER
			MAIL DATE 11/29/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/518,715

Applicant(s)

MANCOSU ET AL.

Examiner

Rodney T. Frank

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20,22,23,26-31,33,38 and 39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20,22,23,26-31,33,38 and 39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/21/07.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 20-23, 38, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulthard (U.S. Patent Number 5,825,286), and further in view of Koch et al. (U.S. Patent Number 5,562,787; hereinafter referred to as Koch). Coulthard discloses that selected vehicle operational parameters such as tire pressure, wheel temperature and vibration are sensed by sensors mounted on wheel modules secured to the individual vehicle wheels. The sensed parameters are converted to digital format and the resulting digital data is manipulated to determine if the data falls within predetermined operating ranges. The data and information resulting from the manipulation are used to modulate an RF signal transmitted to another location on the vehicle. Additional parameters are sensed at the second location, and calculations are performed on the data received from the wheel modules and the data sensed at the second location to display operational, efficiency and safety information to the vehicle operator and to make such information available to others such as vehicle owners and maintenance personnel (Please see the abstract).

With respect to claim 20, Coulthard actually discloses the bulk of the claimed subject matter, namely, a moveable unit (10), a fixed unit (figure 5), wherein the

moveable unit is combined with the tyre/tire (see column 2 lines 24 through 29), a device/sensor to sense a parameter (see figure 4), a processing unit (figure 4, 110), a storage device (column 3, lines 48 through 51), a device for generating electrical energy (column 3 line 61 through 65), that device capable of supplying electrical energy to the processing unit and transmitting device, a preprocessing of the signal (column 7 lines 14 through 21), and a signal transmitted to relate to at least one measured parameter. Coulthard does not disclose, however, wherein the sensing device, transmitting device, processing unit, storage device, and the electrical energy device are produced on the same substrate. Koch, however, does disclose such a feature.

Koch discloses that a method for monitoring various physical conditions of pneumatic tires, and to a tire including a monitoring device. More particularly, the invention relates to a method of monitoring tires which uses an active, self-powered programmable electronic device which is installed in or on the interior surface of a pneumatic tire or on a tire rim. This device can be used for monitoring, storing and telemetering information such as temperature, pressure, tire rotations and/or other operating conditions of a pneumatic tire, along with tire identification information. The device includes a power source which can be placed into an active or a dormant mode using a data band switching circuit. The device can be activated by externally transmitted radio frequency waves or microwaves and in response, the device compares or transmits information and provides a warning in the event a preselected limit is exceeded (Please see the abstract).

Both Koch and Coulthard are both devices that are used to monitor a parameter of a tire. In column 7, lines 40 through 53, Koch discloses that the components of his system are disclosed on a single substrate. The benefit of such a construction is that it is smaller for such an application as mounting in a tire, and it is less expensive to use a single substrate instead of more than one. This is the motivation to combine the teachings of the two references, as well. With this combined teaching, we now have the needed electronics on one substrate, as claimed.

With respect to claim 22, the system of claim 20, wherein the storage device comprises at least one pre-stored procedure capable of performing the pre-processing of the signal generated by the sensing device is disclosed in the Coulthard reference in column 8 line 16 through column 9 line 24.

With respect to claim 23, the system of claim 20, wherein the signal generated by the sensing device is converted into a digital signal by the processing unit is disclosed in the Coulthard reference in column 8 line 16 through column 9 line 24.

With respect to claim 38, a movable unit for sensing at least one characteristic parameter of a tire fitted to a vehicle, comprising a device for sensing the at least one characteristic parameter; a device for transmitting signals out of the tire; a processing unit; and a storage device; and a device for generating electrical energy wherein the processing unit and storage device carry out pre-processing of a signal generated by the sensing device and send the pre-processed signal to the transmitting device, and wherein the transmitted signal relates to the at least one characteristic parameter is disclosed in column 2 lines 24 through 67 and column 3, lines 36 through

65. As above, Coulthard does not disclose the various components on a single substrate. However, as discussed in more detail above, Koch discloses such a limitation and the combination would be applied here as well.

With respect to claim 39, a vehicle wheel, comprising a tire; a supporting rim for the tire; and a movable unit combined with the tire; wherein the movable unit comprises a device for sensing at least one characteristic parameter of the tire; a device for transmitting signals out of the tire; a processing unit; and a storage device; and a device for generating electrical energy wherein the processing unit and storage device carry out pre-processing of a signal generated by the sensing device and send the pre-processed signal to the transmitting device, and wherein the transmitted signal relates to the at least one characteristic parameter is disclosed in column 2 lines 24 through 67 and column 3, lines 36 through 65. As above, Coulthard does not disclose the various components on a single substrate. However, as discussed in more detail above, Koch discloses such a limitation and the combination would be applied here as well.

3. Claims 26-31 rejected under 35 U.S.C. 103(a) as being unpatentable over Coulthard , and further in view of Koch et al. as applied to claims 20-23, 38 and 39 above, and further in view of Handfield et al. (U.S. Patent Number 5,473,938; here in after referred to as Handfield).

Handfield discloses that the present invention relates to a method and system for monitoring a parameter of a vehicle tire. In one embodiment, a detector unit disposed within the tire communicates with a central receiver unit over an electromagnetic path comprising one or more conductive components of the vehicle. Other embodiments of

the invention include additional communications links for receiving information from and controlling the detector unit and the receiver (Please see the abstract).

Coulthard, Koch, and Handfield are each concerned with monitoring the parameters of a tire. However, while Koch just mentions a battery without any specifics to the battery and Coulthard only mentions a power source without specifics, Handfield mentions a battery that utilizes a capacitor in order to maintain a charge such that the sensor can operate even when the wheel is not in motion. This is helpful because Coulthard discloses the use of a capacitor to conserve battery power in column 5, lines 12 through 35, but does not explicitly disclose the structure of the capacitor or enough detail of its relationship to the power of the system and the battery in particular. However, Handfield discloses a system that utilizes a power source with a capacitive storage such that the device can still operate under varied conditions.

With respect to claims 26-31, Handfield discloses the use of a capacitor in order to provide power during periods when the wheel is not moving.

With respect to claim 26, the capacitor responding to mechanical stresses is disclosed in column 13, lines 54 through 62 of the Handfield reference.

With respect to claims 27 and 28, the fixed plate and movable plate are also disclosed in column 13, lines 54 through 62 of the Handfield reference.

With respect to claims 29-31, while springs are not specifically disclosed, figure 9c of the Handfield reference shows a spacer (330) between the plats. While not shown to be nor disclosed as a spring, a spring would suffice as a spacer and a movable

support for the capacitive plates. It is also shown that there is a fixed support and end stop element in item 310 that would serve as a functional equivalent.

4. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coulthard in view of Koch et al. as applied to claims 20-23, 38, and 39 above, and further in view of Widner (U.S. Patent Number 6,199,575). Widner discloses a valve system includes a movable microelectromechanically structured (MEMS) pressure sensor that not only senses pressure but also functions as a mechanical actuator for the valve. An alternative valve system includes a MEMS pressure sensor that extends through an aperture in a curved wall, such as a curved wall of a valve body or a valve core, at an oblique angle to allow it be securely mounted in the confined space of an automotive-type tire inflation valve. The valve system includes a transmitter integrated with the valve and a receiver located at a remote location, such as the passenger compartment of an automobile (Please see the abstract).

As can be seen from the abstract, Widner, like Coulthard and Koch, are concerned with measuring tire parameters. Widner, however, specifically discloses the use of a MEMS based sensor for such measurement. Widner discloses that his unit mounted to the tire is constructed using MEMS technology. Again, a motivation to use the MEMS sensor of Widner is its small size thus making it easy to place the device onto a tire with little to no effect to the tire.

Response to Arguments

5. Applicant's arguments with respect to claims 20, 22, 23, 26-31, 33, 38, and 39 have been considered but are moot in view of the new ground(s) of rejection.

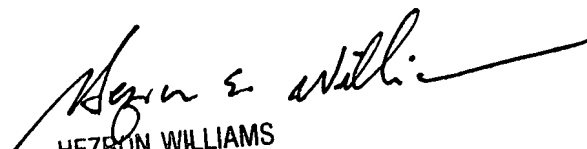
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney T. Frank whose telephone number is (571) 272-2193. The examiner can normally be reached on M-F 9-5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RTF
November 16, 2007


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